

J.C. DAVID

NOAA and Seattle

Out of a century-old relationship, a national center for comprehending and solving the difficult problems of ecology, energy, and how humans use the western seas.

U.S. DEPARTMENT OF COMMERCE
National Oceanic
and Atmospheric Administration



NOAA and Seattle



Something over a century ago, the American northwest began receiving the technical attentions of federal ships, surveyors, and scientists, bent on bringing a kind of order to the promising chaos of a new land. Today, the professional descendants of those technical pioneers continue that work from NOAA, the U.S. Commerce Department's National Oceanic and Atmospheric Administration.

More than 1,200 NOAA people work in and around Seattle now; in fact, Seattle's is the largest contingent of NOAA employees outside metropolitan Washington, D.C. These people, and their offices and laboratories and elegantly fitted research ships constitute about a \$50-million-a-year business, a smokeless industry providing scientific services and research.

For them, as for their rougher predecessors, Seattle is both home and a valued consumer of scientific products from NOAA—the agency's meteorologists forecast Seattle weather, its hydrographers chart the area's abundant coastal waters, its fisheries scientists see to the conservation of living resources there. Seattle is also an important staging area for studies that take NOAA ships and people to frontiers many leagues away—a base for the search for new knowledge.

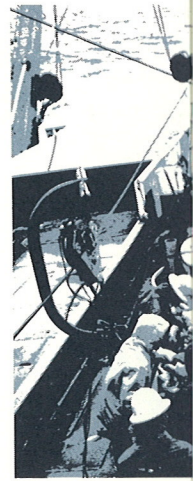
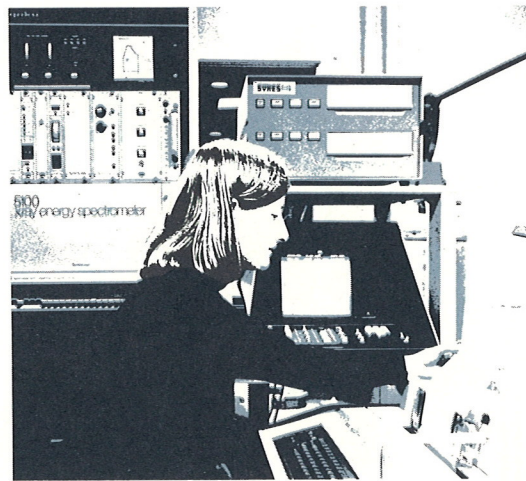
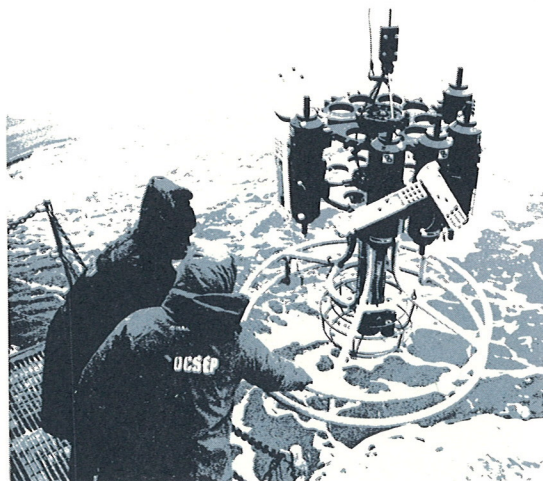
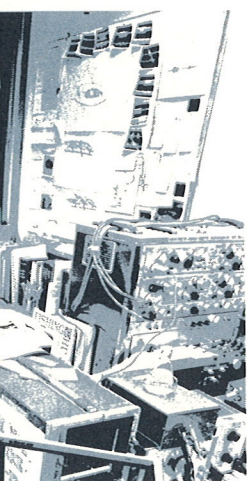
It is a diverse and beneficial kind of

work. It looks at the infinity of physical and biological factors that compose an ecosystem. It examines and tries to predict how the world of Alaskan oil will coexist with the world of Puget Sound. It provides the science behind American arguments for conserving whales and the other grand mammals of the sea. It identifies lucrative fisheries resources, takes their measure, sees to their even-handed management.

And it is long-reached work. A discovery at the Montlake fisheries laboratory, or in the mathematical worlds spun up by computers, or detected by a string of current meters assembled at Sand Point, can affect the quality of life thousands of miles away. This emphasis on how humankind and the natural world accommodate each other is one key to the partnership between the federal agency and the city of Seattle—a city where environmental action was a force before most people had a term describing it. Now, this partnership has fostered a national center of action for studies of the oceans and their life, the impacts of energy development, and the use and protection of the living resources of the seas.

New knowledge A vigorous, young laboratory has begun a swift evolution in Seattle. It is the Pacific Marine Environmental Laboratory, part of

NOAA's Environmental Research Laboratories, a national system of research organizations. Known as PMEL, the Seattle laboratory focused its efforts on providing physical oceanographic and meteorological studies in support of energy- and environment-related investigations of Puget Sound, the outer continental shelf, and the central Pacific. It has also developed strong programs in modeling physical processes numerically, with an accent on models that can predict the paths of oil spilled into the sea. Systems designed and built at the laboratory are producing significant insights into the way atmospheric and oceanic processes interact. The Joint Tsunami Research Effort, led by the University of Hawaii in Honolulu, has a leading role in improving knowledge of the destructive power of generated sea waves. Chemical and biological oceanographers pursue such divergent subjects as oceanic hydrocarbon levels and their impact on planktonic life in the seas, and the effects of increased ultraviolet radiation (as from the stratospheric ozone shield) on phytoplankton and zooplankton. Not content with the vantage point of ships, PMEL conducts a satellite program to use remote sensing



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aboard aircraft and satellites to observe life and processes in the sea.

Man and environment A project called DOMES (for Deep Ocean Mining Environmental Study) is attempting to determine the probable impact on the deep-ocean environment of commercial manganese-nodule mining in the Pacific. DOMES is conducted by PMEL for NOAA's Marine Ecosystems Analysis (MESA) program, another key element in the NOAA-Seattle relationship.

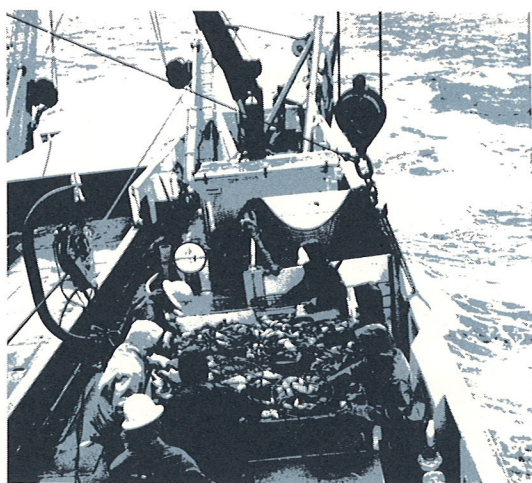
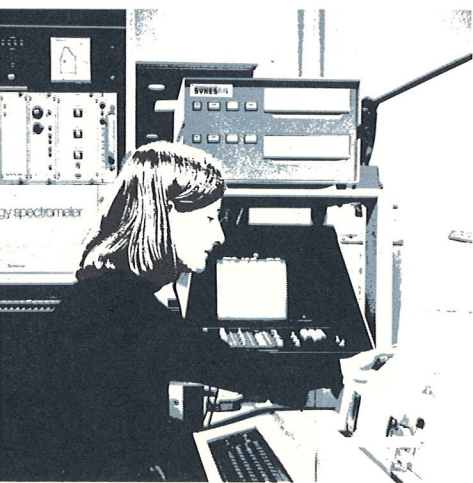
The MESA Puget Sound Project is a systematic examination of the deep, relatively unpolluted environment of the central Sound, with emphasis on the pollution potential of wastewater and other waste products. The same NOAA scientists who manage the MESA Puget Sound Project are also running a study of the northern Sound, funded by the Environmental Protection Agency. This study is concerned mainly with obtaining baseline measurements of the ecosystem as it is today, and assessing the probable impact of oil spills and other less catastrophic discharges of petroleum into the cold waters of the northern Sound. These will be crucial questions as Alaskan oil begins to flow southward.

Oceanic life The cold waters of the northeastern Pacific and Bering Sea hold

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some of the world's richest fisheries,
and these have shaped the work of
NOAA's National Marine Fisheries Service
in Seattle. The city is home for the
agency's Northwest Regional Office, a
focal point for the difficult decisions
of managing fisheries resources, and
for enforcement of the international
agreements controlling exploitation of
northern fisheries.

Regional fisheries managers and
their colleagues at the Northwest and
Alaska Fisheries Center at Montlake
are also working together to meet the
increasing demand for information
generated by the newly adopted "200-mile
limit" for fisheries.

The Montlake facility is an important
national focus for research on the
fisheries of the northeastern Pacific, from
salmon (a responsibility shared with
states along the rivers used by these
fresh-water spawners) to the open-sea
fisheries of the Gulf of Alaska and Bering
Sea. The work at Montlake takes fisheries
biologists to sea to study aquatic
population dynamics, to Arctic ice to
census whales, seals, and other marine
mammals, and into the laboratory to
develop new ways of using fisheries
products, explore the toxicity of
organisms, and study the physiological
effects of various pollutants in the marine
environment. Researchers at the center
are pioneering techniques of salmon and

shrimp aquaculture, and engineering
improved methods and equipment for
harvesting the living resources of the sea.

Much of the data obtained by
scientists at this facility (and its field labs
in Alaska, on the Columbia River, and on
Puget Sound) is used to develop and
support United States positions in
international fisheries negotiations,
including those affecting whales, seals,
and other marine mammals. The fisheries
scientists are key participants in the
biological side of the Outer Continental
Shelf Environmental Assessment
Program, a major environmental program
managed by NOAA for the Bureau of
Land Management to assess the
probable impact of petroleum
development off Alaska.

Forecasting northwest weather From its
facility on Lake Union, the Seattle Weather
Service Forecast Office—a major office
of NOAA's National Weather Service—
provides the first line of information
between the people of the northwest and
the region's widely varying brand of
weather. Besides doing the work of
reporting and forecasting weather, and
warning against hazardous extremes, the
people at WSFO-Seattle deliver a family
of tailored weather products: aviation
weather forecasts, agricultural and
air-pollution forecasts, river forecasts
and flood warnings, and reports



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Knowledge A vigorous, young laboratory has begun a swift evolution in Seattle. It is the Pacific Marine Environmental Laboratory, part of

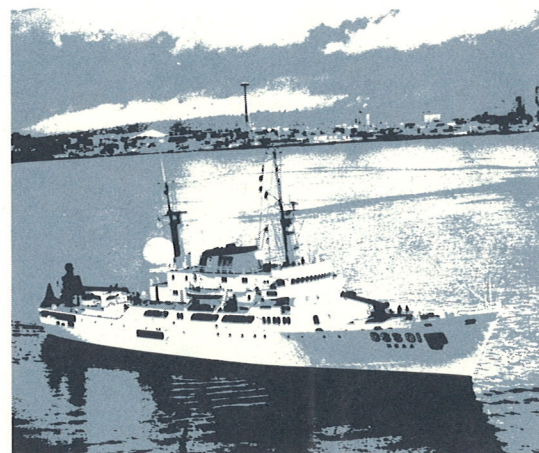


and forecasts for the area's enormous maritime audience.

The Seattle office is also developing (with PMEL) a prototype marine weather service, in which mariners receive personalized meteorological services similar to those now available routinely to cross-country aviators. The new service provides reports and forecasts of sea-surface temperatures, sea and swell, tide and bar conditions, ocean currents, and a variety of special data products tailored to the particular needs of private and commercial users.

Floating laboratories Nine of the 25-ship research and survey fleet operated by NOAA's National Ocean Survey stage out of the Pacific Marine Center, on Seattle's Lake Union, and three others used by laboratories in Alaska, Hawaii, and California are attached to the center. Some of these are modern hydrographic vessels whose surveys ultimately become new nautical charts. Other ships support major oceanographic and fisheries research programs. Their crews make up fully half of the NOAA employees in Seattle.

The familiar sight of a white NOAA ship moving through the locks to Puget Sound and out to the Hood Canal is rarer than it used to be. The pressures of hydrography, the large ecosystem study off Alaska, extended fisheries jurisdiction,



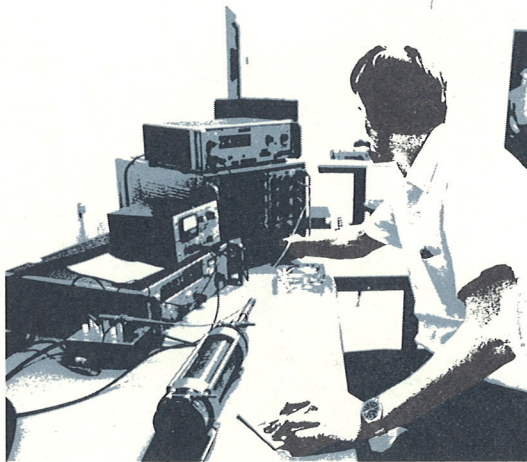
and other crucial projects have greatly lengthened their field seasons. Where ships once went out in early spring and returned in autumn, many are now at sea from January into November, with a several-week break at home during the year. Two of the Class I ships in 1977 are spending 210 days at sea; the *Miller Freeman* will be out for 250, returning to Seattle only for a change of crew, resupply, and repair before returning to her distant working grounds.

Sensing in the sea Across Lake Washington at Bellevue, the Northwest Regional Calibration Center provides onshore testing and calibration of oceanographic instruments, using equipment that can simulate varying ocean environments. Operated for NOAA by the Oceanographic Institute of Washington, the facility is helping improve the quality and consistency of measurements made at sea.

Other partners Seattle is also the scene of other NOAA partnerships.

The State of Washington is one of these. It was the first of the coastal states to receive a grant from NOAA's Office of Coastal Zone Management to implement a state plan ensuring balanced use and conservation in the coastal zone.

In addition to the close interactions one would expect between NOAA



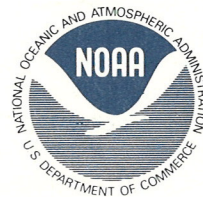
researchers and the University of Washington, the University also has a strong Sea Grant program, which is partially funded by NOAA's Office of Sea Grant. Part of that program is a Marine Advisory Service, a cooperative effort between NOAA and Sea Grant universities to see that research developments in the marine sciences reach the users, and that users can help shape the form such information takes.

The future and Sand Point NOAA units in Seattle, and many in Alaska and down the Pacific coast, receive support from NASO, NOAA's Northwest Administrative Services Office. NASO is a kind of city hall for NOAA in Seattle, providing the administrative help—personnel, finance, counsel, procurement, logistics, training—scientific units need to function.

NOAA offices, laboratories, and other facilities are now scattered across the Seattle metropolitan area, with facilities on Lake Union, Montlake, and at about seven other locations around town. Under NASO's guidance, most of these offices will be brought into a major facility now evolving at the decommissioned Naval Air Station at Sand Point, on Lake Washington.

The Sand Point Project is a new milestone in the agency-city relationship. About half the land now occupied by the unused runways will be transformed into a

lakeside park by the city. The rest will provide a new home for NOAA in Seattle. At present, portions of the Pacific Marine Environmental Laboratory and the Northwest and Alaska Fisheries Center are there. Over the next several years, most of the NOAA elements in Seattle will move to Sand Point, to form a center for environmental research and service without equal in the American northwest.



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